

Appl. No. 10/791,533
Art Unit: 2854
Response to Office Action
Mailed October 15, 2005
Attorney Docket No.: 26047

Amendments to the Specification:

Please replace the paragraph beginning on page 7, line 13 with the following amended paragraph as shown:

In the example of [[CTP]] plate-loading in a computer-to-plate (CTP) system, the short-circuit detector probe of the present invention is designed to advantageously detect a short-circuit created by the plate's front-edge touching a plurality of registration pins on the drum, and to monitor the continued existence of the short-circuit until the plate's front-edge is securely clamped to the drum. This goal is achieved by using a magnet to maintain electric continuity. The magnetic force acts as a releasable clamp and provides a rigid mount that may withhold vibrations or movements. Another advantage of the probe of the present invention, in conjunction with plate clamps, lies in the fact that its magnetic hold and the electric circuit continuity are still active while the clamp is being released from its actuator.

Please replace the paragraph beginning on page 8, line 1 with the following amended paragraph as shown:

The probe of the present invention, generally denoted by numeral 10, comprises a probe body 15 and a probe body cover 20. The body 15 and cover 20 may be made from any plastic material, such as Derelin, or from aluminum with hard anodized coating, or any other suitable isolating material known in the art, to electrically and magnetically isolate the inner parts. A probe pin 30 is mounted along the inner part of the detector body 15 and emerges from a hole in the cover 20. The probe pin 30 connects between magnets 90, mounted on the lower side of probe 10 and wire connection 40 and serves to conduct current from the probed area to the wire 40. Probe pin 30 should be made from a non-magnetic material and should be electrically conductive. Materials such as aluminum, Stainless Steel 303 or brass are suitable. A push spring 80 is twisted

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around the upper part of probe pin 30 inside the probe body 15. Push spring 80 may be made from any spring steel, e.g. music wire steel. A return spring 70 is twisted around the lower part of probe pin 30 inside the probe body 15. Spring 70 should be made of a non-magnetic material, e.g. Stainless Steel 302. A stoppage step 60 in the inner profile of the body 15 is situated at a "detection distance" from a stoppage means 85 (constituting a "limiter device"), at the bottom end of push spring 80. This "detection distance" determines the travel length which the probe can draw away from the probed area and still detect short circuit. In other words the "detection distance" is the distance that the body of the probe can draw away from the probed area while still ensuring that the pin makes electrical contact with the electrically conductive element. The stoppage means 85 may comprise a washer, or any other means known in the art. The return spring 70 makes sure the probe pin 30 is in its upper position when not active, i.e. when it is not yet primed and ready to detect. The probe pin 30 is designed to float inside the probe body 15 so as not to be affected by small vibrations, motion or misalignment. The push spring 80 acts as a shock absorber when the magnet pops off the probed area, and pushes the magnet toward the probed area to assure attachment when the probe is active i.e. when it is primed and ready to detect. A metal washer 50 is attached to the magnets 90 at the lower end, so the magnet does not have direct contact with the probed area, for two reasons: first, magnet is a very brittle material and the direct contact might break it; second, the metal conducts better than magnet. The magnets 90 may be chosen according to application-dependent required force. In the exemplary CTP application described herein two Neodymium magnets were placed front-to-back. Other magnets such as Alnico or Ceramic may be used. The metal washer 50 should be made from a very good magnetic and electric conductor, such as a low-carbon steel (SAE 1008-1016) with electroless Nickel coating. This gives a very strong, wear-resistant coating with good conductivity.

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Please replace the paragraph beginning on page 9, line 14 with the following amended paragraph as shown:

The operation of the short-circuit detector probe of the present invention will now be described in conjunction with the non-limiting example of a CTP device. FIG. 2 is a schematic drawing of an external drum for mounting plates in a CTP device. Leading Edge Clamps (LEC) 110 are sequentially mounted ~~[[along]]~~ external to the drum 100 parallel to the longitudinal axis of the drum 100. Each LEC 110 has two pins shafts 115 mounted firmly at the sides of the clamp. The shaft is rotated in a plastic bearing 116, which is mounted at the clamp housing. Plate registration pins 120 are mounted on the drum, along the same axis. Each registration pin 120 is connected to a registration pin contact probe area 130, mounted at the rear end of the adjacent LEC 110.

Please replace the paragraph beginning on page 10, line 4 with the following amended paragraph as shown:

FIG. 4A is a front view of the LEC's actuator 170, along which a plurality of probes 10 are mounted. The actuator 170 is mounted ~~[[along]]~~ external to the drum 100 parallel to the longitudinal axis of the external drum 100 and is attached to the machine side-plates, located on both sides of the drum. FIG. 4B is a blown-up view of the circled area in FIG. 4A. The clamp actuator 170 pushes the clamp's rear-end 150 when opening it, by rolling bearings 180, to reduce friction force and wear on the clamp.

Please replace the paragraph beginning on page 10, line 24 with the following amended paragraph as shown:

In FIG. 6A, ~~[[The]]~~ the LEC actuator 170 has been brought to its operating position in order to open the LEC and allow a new plate to be clamped. Clamp actuator bearing 180 applies force to the rear-end 150 of the LEC, and the force

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applied to the spring 160 forces open the front-end 140 of the LEC. At the same time, probe 10, attached to actuator 170, attaches by magnetic force to contact probe area 130, which is electrically connected to registration pin 120, as described above. A plate (not shown) is now inserted under the open LEC, from the direction of its open front-end 140. When the plate touches two registration pins 120 it causes short-circuit, which is sensed by the probe 10 through contact probe area 130. At this stage the return spring 70 is expanded and push spring 80 is contracted and the probe pin 30 is at its uppermost position relative to the probe body 15, as shown in FIG. 1B.